

PREPARED FOR: SANDERSSYSTEMS LLC

TEST ADDRESS: BUZZARDS BAY, MA 02532

# CERTIFICATE OF MOLD ANALYSIS

## PREPARED FOR:

SANDERSSYSTEMS LLC

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EMAIL: ALAN@SANDERSSYSTEMS.NET

## TEST LOCATION:

ALAN SANDERS

BUZZARDS BAY, MA 02532

CHAIN OF CUSTODY # 52412724

COLLECTED: SUN DECEMBER 27, 2020

RECEIVED: TUE DECEMBER 29, 2020

REPORTED: WED DECEMBER 30, 2020



APPROVED BY: JOHN D. SHANE PH.D.,  
LABORATORY MANAGER

VERSION: 1.0 (A VERSION NUMBER GREATER THAN ONE (1) INDICATES THAT THE DATA IN THIS REPORT HAS BEEN AMENDED)

EPA regulations or standards for airborne or surface mold concentrations have not been established. There are also no EPA regulations or standards for evaluating health effects due to mold exposure. Information about mold can be found at [www.epa.gov/mold](http://www.epa.gov/mold).

All samples were received in an acceptable condition for analysis unless noted specifically in the Comments section under a particular sample. All results relate only to the samples submitted for analysis and apply to the samples as received by the laboratory. Volumes, flowrates, areas or other information are supplied by the customer. This information can affect the validity of the results. Results have not been adjusted for field or laboratory unless otherwise noted. InspectorLab bears no responsibility for sample collection activities or analytical method limitations. No warranty is either express or implied and InspectorLab assumes no responsibility or liability for error in public information utilized, statements from sources other than InspectorLab, or developments resulting from situations outside the scope of this analysis, nor for the purpose for which the client uses the analysis. The determinations in this report are outside the scope of the AIHA LAP, LLC scope of accreditation. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. InspectorLab liability is limited to the cost of the sample analysis and may not exceed the amount of the fee paid by the client.

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# Detailed Mold Report

(WATER-INDICATING FUNGI, IF PRESENT, ARE SHOWN BELOW IN RED)

Analysis Method	Air Analysis	Air Analysis
Lab Sample #	52412724-1	52412724-2
Sample Identification	31538633	31537830
Sample Location	LIVING ROOM #1	LIVING ROOM #2
Sample Type / Metric	Air-O-Cell/150L	Air-O-Cell/75L
Analysis Date	Wed December 30, 2020	Wed December 30, 2020
<b>Determination</b>	<b>NORMAL</b>	<b>NORMAL</b>

Air Analysis
52412724-4
31535525
OUTSIDE
Air-O-Cell/150L
Wed December 30, 2020
<b>CONTROL</b>

Fungal Types Identified	Raw Count	Spores / m <sup>3</sup>	% of Total	Raw Count	Spores / m <sup>3</sup>	% of Total
<b>**Non-Problem Fungi</b>						
Ascospores	---	---	---	1	13	8
Basidiospores	1	7	33	2	27	18
Chaetomium	---	---	---	1	13	8
Cladosporium	1	7	33	1	13	8
Curvularia	---	---	---	2	27	18
Penicillium/Aspergillus	---	---	---	1	13	8
Pithomyces	---	---	---	1	13	8
Smut/Myxomycetes	---	---	---	1	13	8
Tetraploa	---	---	---	---	---	---
Unclassified Pigmented Spores	1	7	33	1	13	8
<b>Total Spore Count<sup>#</sup></b>	<b>3</b>	<b>21</b>	<b>100</b>	<b>11</b>	<b>150</b>	<b>100</b>
<b>Minimum Detection Limit</b>	<b>7</b>			<b>14</b>		

Raw Count	Spores / m <sup>3</sup>	% of Total
3	20	27
6	40	54
---	---	---
1	7	9
---	---	---
---	---	---
---	---	---
1	7	9
---	---	---
11	74	100
<b>7</b>		

<b>Comments/Definitions</b>	Mold counts are within a NORMAL RANGE and there is no indication, based on the mold counts, that there is any exposure concern to the occupants. The LIGHT DEBRIS present in the sample likely had no effect on the accuracy of the mold count.	Mold counts are within a NORMAL RANGE and there is no indication, based on the mold counts, that there is any exposure concern to the occupants. The LIGHT DEBRIS present in the sample likely had no effect on the accuracy of the mold count.
<b>Raw Count:</b> Actual number of spores observed and counted.		
<b>Spores/m<sup>3</sup>:</b> Spores per cubic meter.		
<b>% of Total:</b> Percentage of a particular spore in relation to total number of spores.		
<b>Present = growth observed.</b>		
---: Spore type was not observed.		
* : Indicates to look above at the names in red under "indoor problem fungi".		

CONTROL samples are normally taken outside a building to provide a baseline from which samples on the interior of the building are compared. Outside air is considered normal whatever the mold counts may be. LIGHT DEBRIS: The debris present in the sample likely had no effect on the accuracy of the mold count.
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\*\* Non-Problem Fungi are less capable or do not grow on wetted building materials. They are commonly found in the air outside and infiltrate into indoor air naturally. High numbers of any one of these spore types as compared to the Control sample may indicate that they are growing on wetted building materials indoors.

Spore types not listed in this report were not observed.

Background debris estimates the amount of non-spore particles. Increasing amount of debris will affect the accuracy of the spore counts. Total percent may not equal 100% due to rounding.

#Total Spore Counts are reported to 2 significant figures.

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## Detailed Mold Report

(WATER-INDICATING FUNGI, IF PRESENT, ARE SHOWN BELOW IN RED)

Analysis Method		Intentionally Blank	Intentionally Blank
Lab Sample #			
Sample Identification			
Sample Location			
Sample Type / Metric			
Analysis Date			
<b>Determination</b>			
<b>Fungal Types Identified</b>			
**Non-Problem Fungi			
Alternaria			
Basidiospores			
Cladosporium			
<b>Total Spore Count<sup>#</sup></b>			
<b>Minimum Detection Limit</b>			
<b>Comments/Definitions</b> <b>Raw Count:</b> Actual number of spores observed and counted. <b>Spores/m<sup>3</sup>:</b> Spores per cubic meter. <b>% of Total:</b> Percentage of a particular spore in relation to total number of spores. <b>Present</b> = growth observed. ---: Spore type was not observed. * : Indicates to look above at the names in red under "indoor problem fungi".		INTENTIONALLY BLANK	INTENTIONALLY BLANK

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**Introduction**

All spores found in indoor air are also normally found in outdoor air because most originate or live in the soil and on dead or decaying plants. Therefore, it is not unusual to find mold spores in indoor air. This Mold Glossary is only intended to provide general information about the mold found in the samples that were provided to the laboratory.

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***Alternaria***

- Outdoor Habitat:** One of the most commonly observed spores in the outdoor air worldwide, normally in low numbers.
- Indoor Habitat:** Capable of growing on a wide variety of substrates and manufactured products found indoors when wetted.
- Allergy Potential:** Type I (hay fever, asthma), Type III (hypersensitivity pneumonitis), Common cause of extrinsic asthma
- Disease Potential:** Not normally considered a pathogen, but can become so in immunocompromised persons.
- Toxin Potential:** Several known
- Comments:** One of the most common and potent allergens in the indoor and outdoor air. Seen in indoor air in low concentrations, probably as a result of outdoor air infiltration and/or recycling of settled dust.
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***Ascospores***

- Outdoor Habitat:** Soil and decaying vegetation, dead and dying insects. These spores constitute a large part of the spores in the air and can be found in the air in very large numbers in the spring and summer, especially during and up to three (3) days after a rain.
- Indoor Habitat:** Very few of fungi that produce ascospores grow indoors. Some fungi that produce ascospores are recognizable by their spores and when observed are listed under their own categories. Wetted wood and gypsum wallboard paper
- Allergy Potential:** Depends on the type of fungus producing the ascospores.
- Disease Potential:** Not normally pathogenic as a group
- Toxin Potential:** None known
- Comments:** Ascospores are produced from a very large group of fungi. Notable ascospores that are considered problematic for indoor environments are Chaetomium, Peziza, and Ascotracha. If these types of ascspores are observed they will be listed in the report under their own names.
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***Basidiospores***

**Outdoor Habitat:** These are mushroom spores and are common everywhere outside, especially in the late summer and fall.

**Indoor Habitat:** Mushrooms can grow on very wet wood products, especially on footer plates, basements, and crawlspaces. Sometimes mushrooms can be observed growing in potted plants indoors.

**Allergy Potential:** Rarely reported, but some Type I (hay fever, asthma) and Type III (hypersensitivity pneumonitis) has been reported.

**Disease Potential:** None known

**Toxin Potential:** None known

**Comments:** Mushroom spores are commonly found indoors, especially when the outdoor spore count is high. When spores of this group are derived from wood rotting fungi, including dry rot (*Serpula* and *Poria*), they can be especially destructive to buildings. When spores from destructive types of mushrooms (dry and wet rot group) are observed in the sample they are listed under their own names on the report.

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***Chaetomium***

**Outdoor Habitat:** Commonly found on paper products, soil, decaying vegetation, wood and natural fiber textiles (such as jute-backed carpets, canvas, etc.) and similar materials. They are rarely identified in outdoor air. These spores can be disseminated by insects, wind and water splash, etc. It is also known as a soft-rot fungus for softwood and hardwood timber.

**Indoor Habitat:** Chaetomium is often found on a variety of substrates containing cellulose that are chronically wetted, including paper documents, wallpaper, textiles and construction materials like gypsum board (paper-coated sheet rock) and wood.

Chaetomium can develop quickly, covering a surface with substantial growth after two weeks.

Chaetomium globosum is the most commonly found species of Chaetomium indoors. It is not that unusual to find the occasional Chaetomium spore in the air indoors.

**Allergy Potential:** Type I (hay fever, asthma) potential. However, no allergens have yet been characterised. However, at least two potential allergens have been isolated.

**Disease Potential:** Rarely reported as human pathogen.

**Toxin Potential:** Several known

**Comments:** Chaetomium spores are easily disseminated when it becomes dry. However, Chaetomium spores do not remain airborne for long unless disturbed.

This genus is often associated with termite damaged and rotting wood. These spores will continue to be found in the air until this damaged wood is removed.

High numbers of spores of this genus is not normal for indoor environments and indicate a current or former water problem. Furthermore, since the spores are held together by mucilage and trapped by hairs, few become airborne until the mold has completely dried out or is mechanically disturbed during renovations remediation. It is, therefore, not uncommon to find low Chaetomium spore counts in pre-remediation air samples and relatively higher counts in post-remediation samples.

Chaetomium species colonize surfaces under similar conditions as Stachybotrys, Alternaria, Fusarium and Ulocladium.

HIGH CONCENTRATIONS AND LONG EXPOSURES TO CHAETOMIUM SHOULD BE AVOIDED.

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***Cladosporium***

**Outdoor Habitat:** Cladosporium is one of the most common environmental fungi observed worldwide and is widely reported from soil and decaying vegetation.

Cladosporium herbarum and C. cladosporioides are among the most frequently encountered species, both in outdoor and indoor environments.

**Indoor Habitat:** Wetted wood and gypsum wallboard paper, paper products, textiles, rubber, window sills. Cladosporium has the ability to grow at low temperatures and can thus, grow on rubber gaskets and food in refrigerators.

**Allergy Potential:** Type I (hay fever, asthma) - an important and common outdoor allergen

**Disease Potential:** Opportunistic pathogen in immunocompromised persons, not normally a pathogen in healthy individuals. Cladosporium are some of the most common species reported as indoor contaminants, occasionally linked to health problems.

**Toxin Potential:** Cladosporium has two known toxins (cladosporin and emodin). These toxins are not known to be highly toxic. There is no evidence in the literature of toxic effects associated to inhalation of Cladosporium conidia (spores) indoors.

**Comments:** The most commonly reported spore in the outdoor air worldwide. This makes Cladosporium one of the most commonly reported and abundant spore types both indoors and outdoors. The prevalence of this spore can vary throughout the year, but is especially high in late summer and autumn, especially where cereal crops are commonly planted.

An important and common allergen source.

***Curvularia***

**Outdoor Habitat:** Soil and decaying vegetation

**Indoor Habitat:** Wetted wood and gypsum wallboard paper, many cellulytic substrates

**Allergy Potential:** Type I (hay fever, asthma), common cause of allergenic rhinitis

**Disease Potential:** Potential human pathogen in immunocompromised people

**Toxin Potential:** None known

**Comments:** None

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***Penicillium/Aspergillus***

**Outdoor Habitat:** Soil and decaying vegetation, textiles, fruits. These spores are commonly observed and are a normal part of outside air.

**Indoor Habitat:** Wetted wood and gypsum wallboard paper, textiles, leather, able to grow on many types of substrates.

**Allergy Potential:** Type I (hay fever, asthma), Type III (hypersensitivity pneumonitis)

**Disease Potential:** Opportunistic pathogen in immunocompromised persons, not normally a pathogen in healthy individuals.

**Toxin Potential:** Several known

**Comments:** Extremely common in indoor air in low to moderate amounts as compared to the outside air. This type of spore should not constitute an overwhelming percentage (e.g., 90% or greater) and/or be present in very high numbers as compared to the outside (control). However, this type of mold is not always detected in outside air.

There is a wide range of what is a NORMAL amount of this type of mold spores in indoor air.

These two genera are grouped together because they cannot be reliably differentiated into their respective genera based solely on spore morphology.

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***Pithomyces***

**Outdoor Habitat:** Soil and decaying vegetation and their spores are easily dispersed into the air by wind

**Indoor Habitat:** Wetted wood and gypsum wallboard paper

**Allergy Potential:** None known

**Disease Potential:** None known

**Toxin Potential:** One known (sporidesmin)

**Comments:** A very common spore type in outdoor air. Can be a water indicator mold type when growing on surfaces indoors.

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***Smut/Myxomycetes*****Outdoor Habitat:** Soil and decaying vegetation and wood, especially dead stumps and bark**Indoor Habitat:** Not normally known to grow indoors. However the Myxomycetes can sometimes be found on firewood inside the home and especially on wood paneling. Sometimes known to grow on wood framing inside walls, ceilings and woodwork in closets.**Allergy Potential:** Type I (hay fever, asthma), rare**Disease Potential:** None known**Toxin Potential:** None known**Comments:** These two groups are difficult to distinguish due to their "round and brown" morphology. Smuts are especially common in the outside environment and can be seen in indoor air samples even during the winter in homes because the spores enter homes. These spores can be recycled through the indoor environment all year in small amounts.

An large number of these types of spores indoors can mean that there are fruiting bodies inside the home due to excessive water, usually on a wood surface(s).

***Tetraploa*****Outdoor Habitat:** Soil and decaying vegetation**Indoor Habitat:** Not known to grow indoors**Allergy Potential:** None known**Disease Potential:** None known**Toxin Potential:** None known**Comments:** Spores are very heavy and not easily dispersed into the air by wind***Unclassified Pigmented Spores*****Outdoor Habitat:** None specified**Indoor Habitat:** None specified**Allergy Potential:** Although no specific allergic potential can be given, ALL spores have the potential to be allergenic.**Disease Potential:** None known**Toxin Potential:** Unknown**Comments:** Unknown spores that have at least some color, but do not have enough distinctive characteristics to be identified as any particular type of spore.

This type of spore may also be new to science and therefore, unclassified.